DRAFT
August 4, 1999

Implementation Plan for Stage 1 Actions, Lower San Joaquin River and South Delta Region

Introduction

The CALFED Bay-Delta Program is a cooperative, interagency effort of 15 state and federal agencies with management or regulatory responsibilities for the Bay-Delta system. The mission of the Program is to develop a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay- Delta system. The Program is currently nearing completion of the programmatic planning phase, which will culminate with release of a final Programmatic EIR/EIS and a Record of Decision. This will set the stage for Program implementation, which will require the completion of project-specific environmental documentation for discrete sets of related actions, tiered off of the PEIR/EIS.

Program Implementation

Program implementation will be guided by the implementation plan. The plan focuses on the early years of implementation when needed actions are better known but also reflects a long-term vision for continuing implementation over the next several decades. Implementation will take place in stages, which allows for periodic assessment of success and balance in the program, with opportunities to alter direction and focus as necessary. Proposed actions for Stage 1 of implementation, which is expected to last about 7 years, have been compiled from extensive input from CALFED agencies and stakeholders. They were first circulated for broad public review and comment as part of the Revised Phase II Report, December 18, 1998.

Stage 1 were grouped into bundles for the purpose of achieving regional and programmatic balance, for development of environmental documentation, for establishing Program assurances, for facilitating financing, permitting, and implementation. The proposed bundles were made available for public review and comment since March 1999 through BDAC, CALFED's web site, and as part of the Draft PEIR/EIS released for public review and comment in June, 1999.

Lower San Joaquin River and South Delta Bundle

Among the 7 bundles proposed by CALFED is a bundle of actions for the lower San Joaquin River and south Delta region to address long-standing concerns with respect to water quality, fisheries, wildlife habitat, and water supply availability.

In order to expedite Program implementation it is necessary to initiate the project-specific planning process well ahead of the completion of Phase II of the program. Appropriate agency staffing, budgeting, and other resources need to be identified and allocated, and formal environmental documentation needs to be initiated for the highest priority actions. The purpose of this document is to advance this early implementation planning process for the lower San Joaquin River and south Delta region by suggestion an approach to organizing actions into projects and defining their geographic and topical scope, to propose implementation responsibilities for the various CALFED agencies and stakeholder groups, to identify funding requirements, and to lay out proposed implementation schedules.

In this report actions included for the lower San Joaquin River and south Delta region bundle are grouped into 12 distinct projects, ranging from feasibility studies to full EIR/EIS' as shown in Table 1. An overview of the organization is provided by Figure 1; more detail is provided in the descriptions for each project. An overview of the implementation schedule for the entire bundle is provided by Figure 2.

The proposed grouping of actions into discrete projects reflect consideration of project purposes; the expertise and statutory mandates of the various CALFED and local agencies, and the need to create manageable project teams. There is no one correct way to organize this work; it is anticipated that the scope and structure of the proposed projects will be modified as detailed planning gets underway in close coordination with the affected agencies and stakeholders.

Linkages

CALFED has recognized the great importance of maintaining close coordination and linkages between various actions to assure balance, efficiency, harmony among various interest groups. By proposing to implement Program actions as a series of discrete projects, rather than a single comprehensive project, CALFED risks losing the very coordination and linkage so important to overall success. At the same time, it is clear from a practical standpoint that project level planning must be broken into manageable units in order to move forward. Therefore, while striking this balance between very large integrated projects and smaller, discrete projects, CALFED must give a great deal of attention to providing the appropriate linkages between individual projects.

Some of the required linkages are already in place as part of the interim Program structure. Policy Group meetings, BDAC meetings, and a large number of stakeholder/agency meetings provide useful for a for communication and coordination on implementation issues. The current budget processes, including federal, state, and local levels, provide further opportunities for coordination and negotiation to achieve a reasonable balance between competing priorities. In addition existing laws and regulations provide a framework for agency decision which can provide strong linkages expressed in terms of permit decisions and other actions.

However, additional linkage and assurance mechanisms need to be carefully considered

on a case by case basis to assure all agencies and stakeholders that the appropriate balance and coordination will be achieved. Potential additional linkage mechanisms under consideration include contracts, legislation (including bond measures), interagency agreements, and agency directives. CALFED is committed to exploring and implementing the appropriate linkage mechanisms to assure Program integration as implementation proceeds.

Table 1. Proposed Bundling of Early Actions for Project Management Purposes

Note: The project-level, site-specific environmental documentation and feasibility evaluations must be broken down into manageable, coherent project packages in order to move forward efficiently. The individual projects need to be coordinated to various degrees to assure overall adherence to CALFED goals, and linked appropriately to provide agencies and stakeholders with sufficient assurance that actions are properly prioritized, yet reasonably balanced.

EIR/EIS: South Delta Improvements Program (1996 Public Draft by DWR and USBR)
SWP CCFB New Screened Intake
Permanent Barriers at HOR, ORT, and MR
Dredging
Extend and Screen Ag Intakes
Permit interim 8500 cfs and ultimately10,300 cfs, with option for full use of Joint Point of Diversion
Barrier Operations
Monitoring
Mitigation
Settlement Agreement

EA/IS: Tracy Test Fish Facility (500 cfs) (Underway by USBR and Interagency Groups)
Construct test facility to develop best available technology approach to Delta fish screening, salvage, and return

EIR/EIS: Ecosystem and Flood Plain Restoration Associated with the South Delta Improvements Program
Aquatic and terrestrial habitat restoration actions
Flood plain restoration and management actions
Selected levee and channel modification actions
Agricultural and wetland diversion screening

EIR/EIS: Stockton Dissolved Oxygen Solution Alternatives
Municipal wastewater storage and treatment options
Non-point source reduction measures

EIR/EIS: Improved Source Water Quality for Rock Slough Intake, CCWD
Veale Tract Discharge Relocation or treatment
RD 800 discharge relocation or treatment

EIR/EIS: Agricultural Drainage Management in the San Joaquin Basin
On-farm drainage management measures

Irrigation improvement measures
Release of accumulated salts during high flows

Technical Study: Assessment of sources and Magnitudes of Loadings of Constituents of Concern for Drinking Water
Identify sources, relative magnitudes, and potential measures for reducing loadings

Feasibility Study: Recirculation as Tool for Meeting Lower San Joaquin River Flow and Water Quality Objectives
Recirculation of SWP, CVP Exports

EIR/EIS: Vernalis Adaptive Management Plan (Completed)
Secure/provide flows to meet VAMP, ESA, and WQCB Objectives

IS: Temporary Barriers Program(Completed by DWR and Corps. May need to be renewed)
Extend existing temporary barriers program as necessary while permanent facilities are evaluated and implemented

EIR: Joint Point of Diversion for CVP, SWP (Public Draft EIR on WQCP circulated by SWRCB)
(Sharing of existing export capacities)

EIR/EIS: CVP Tracy Pumping Plant Screened Intake Upgrade/Relocation
Forebay Intertie and Consolidated Screening
Aqueduct Intertie for Operational Flexibility

Figure 1. Implementation Organization
For Lower S.J. River, South Delta Bundle

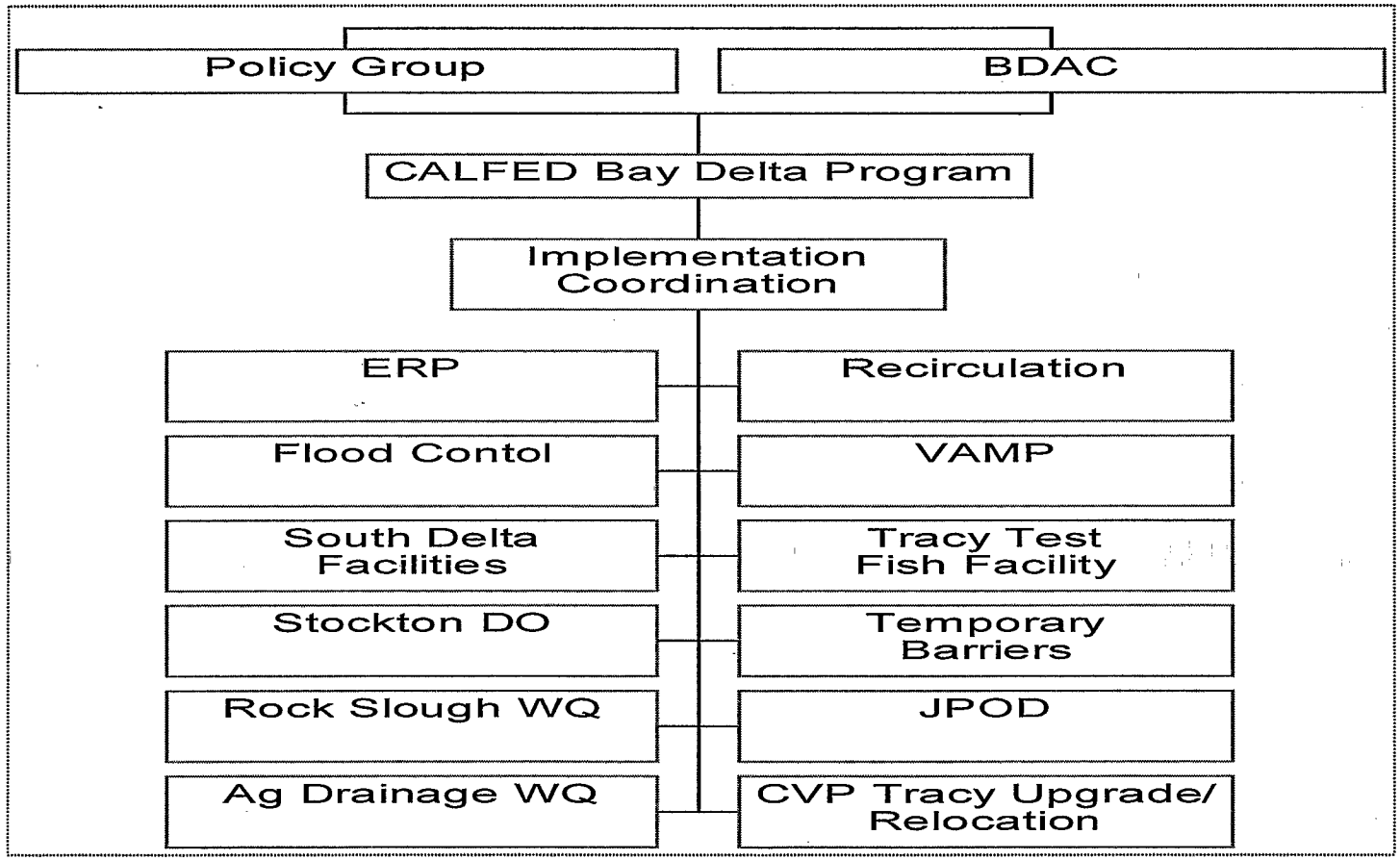
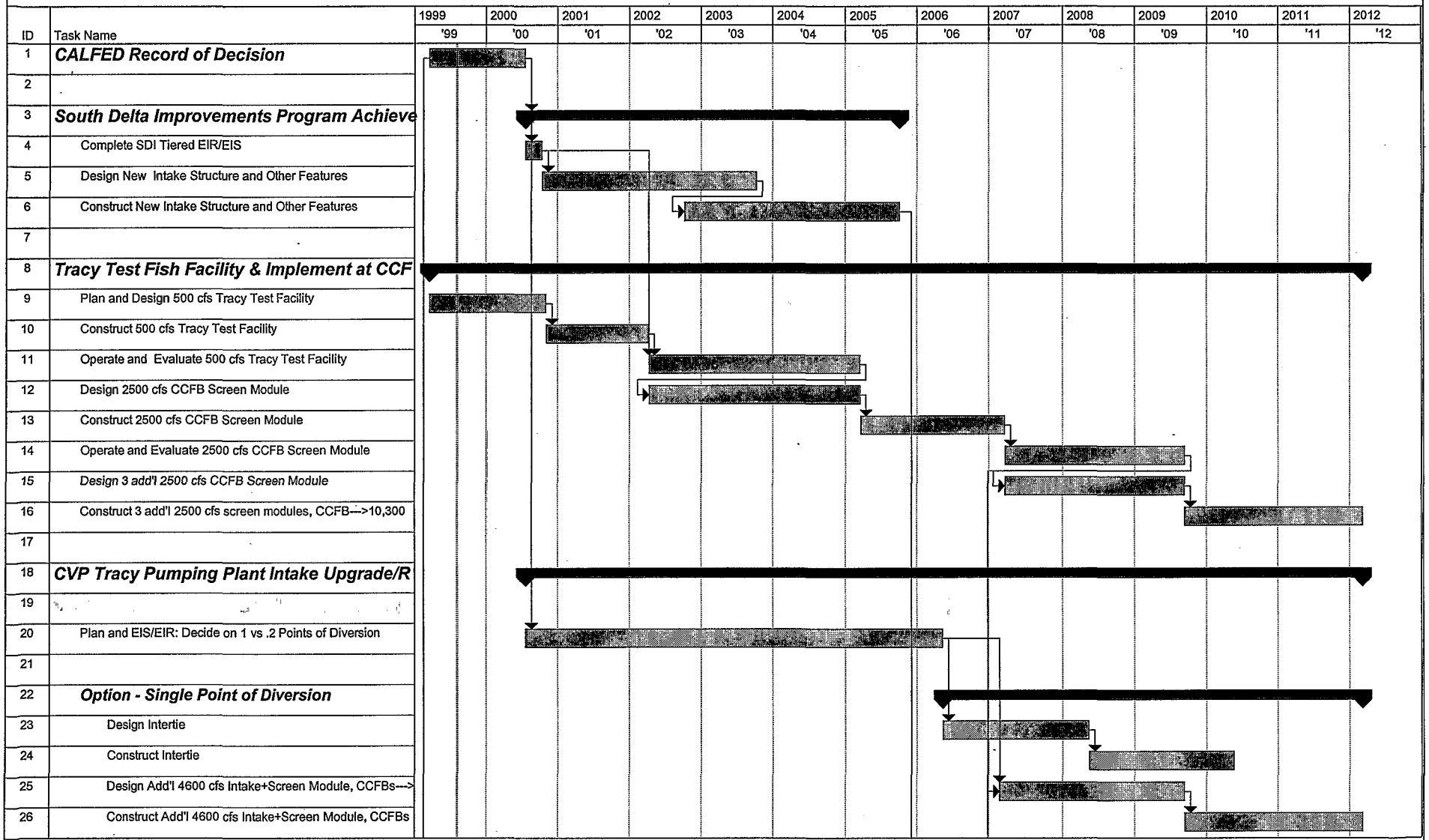


Figure 2 - Draft Implementation Schedule for Stage 1 Actions, Lower San Joaquin River and South Delta Region



DRAFT
August 4, 1999

Schedule - 1

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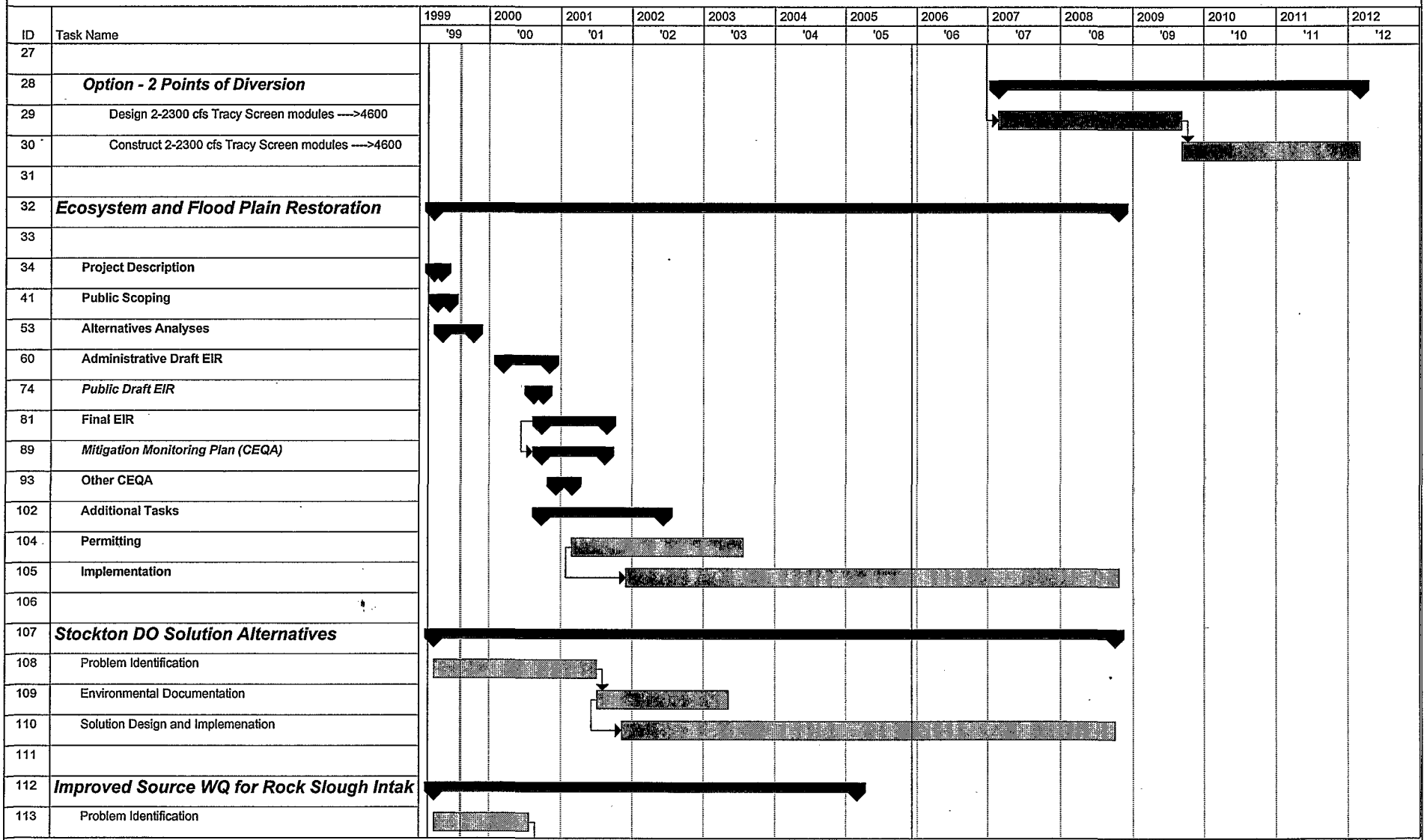
Figure 2 - Draft Implementation Schedule for Stage 1 Actions, Lower San Joaquin River and South Delta Region



DRAFT
August 4, 1999

Schedule - 2

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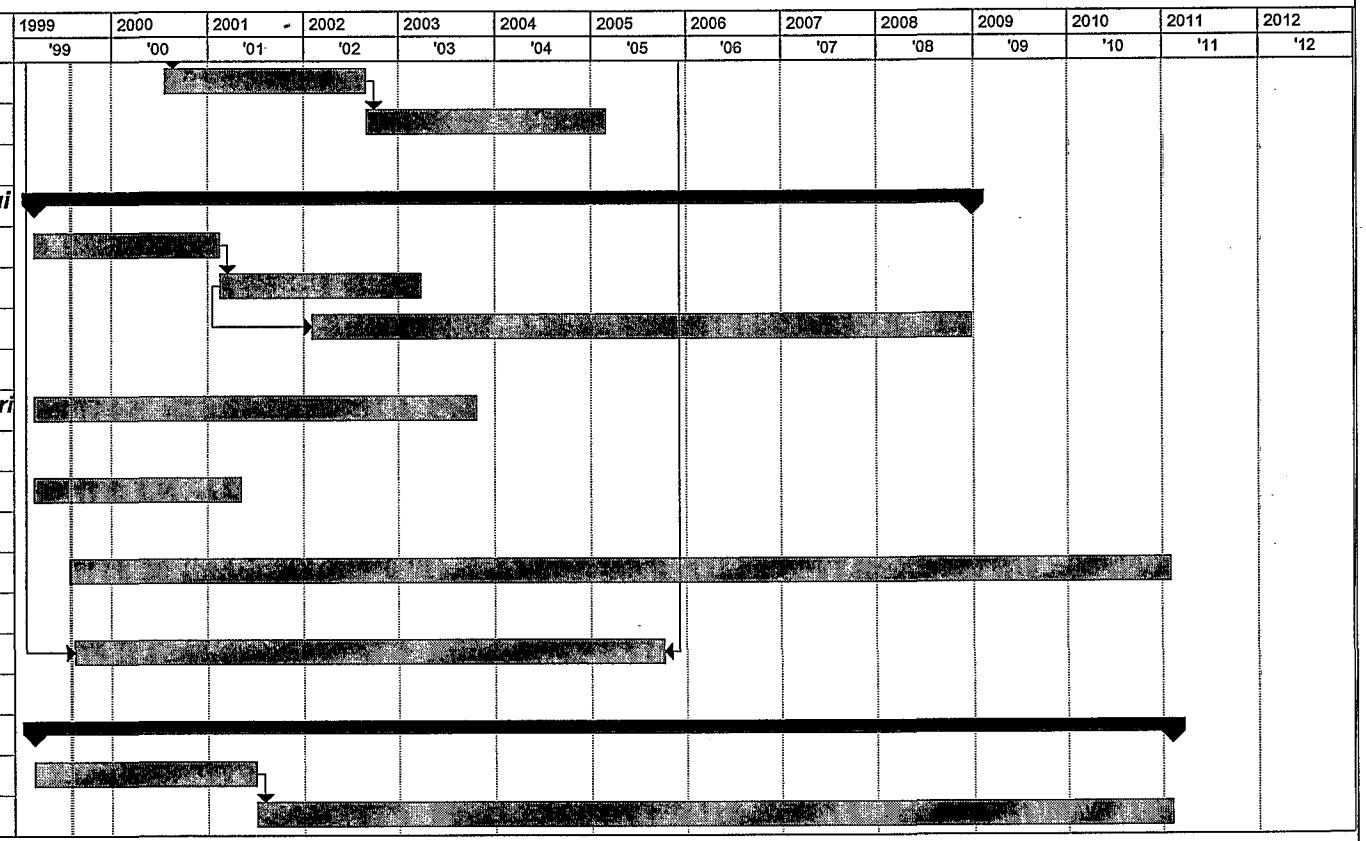
Figure 2 - Draft Implementation Schedule for Stage 1 Actions, Lower San Joaquin River and South Delta Region

ID	Task Name
114	Environmental Documentation
115	Solution Design and Implemenation
116	
117	***Ag Drainage Management in the San Joaqui***
118	Problem Identification
119	Environmental Documentation
120	Solution Design and Implemenation
121	
122	***Assessment of Constituents of Concern, Dri***
123	
124	***Feasibility Study: Recirculation***
125	
126	***VAMP***
127	
128	***Temporary Barriers Program***
129	
130	***JPOD***
131	Decision
132	Implement



Task | Summary | Rolled Up Progress | Project Summary
Progress | Rolled Up Task | Split
Milestone | Rolled Up Milestone | External Tasks

DRAFT
August 4, 1999

Schedule - 3

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EIR/EIS: South Delta Improvements Program Facilities

Project Purpose
The purpose of the South Delta Improvements Project is to improve the reliability of existing State Water Project facilities and operations within the South Delta, while ensuring that water of adequate quantity and quality is available for diversion to beneficial use within the South Delta Water Agency's service area; and to contribute to restoring the ecological health of aquatic resources in the lower San Joaquin River and south Delta.

Project Description
All proposed alternatives which would be analyzed in detail for the revised draft EIR/EIS would include a new screened intake for Clifton Court Forebay, permits to increase pumping as physical diversion capacity and Delta protective needs allow, channel dredging, agricultural intake modifications, and one or more barriers in Delta channels. Several configurations of barriers would be evaluated in detail, along with the No Action Alternative. The following alternatives would be analyzed in detail in the revised draft EIR/EIS:

- No Action Alternative
- Single Barrier Alternative as evaluated by SDIT (Permanent barrier at HOR)
- Multiple Barrier Alternative as evaluated by SDIT (Permanent barriers at HOR, MR, ORT, and GLC)
- Multiple Barrier Alternative recommended by CALFED Policy Group for evaluation in the PEIR/EIS and project level EIR/EIS(Permanent barriers at HOR, MR, and ORT)

The configuration recommended by CALFED for evaluation in the environmental documentation is described in more detail below:

New CCFB Intake: Construct a new intake for Clifton Court Forebay, most likely at a location on Old River on the southeast corner of Byron Tract.
Construct fish screens and fish salvage facilities for the intake in an incremental, modular approach to achieve the goal of screening the full export capacity of the SWP. Design of these facilities would be guided by an inter-agency management structure and coordinated with development of the 500 cfs Tracy Fish Facility to assure that best available technology and all agency concerns are taken into consideration.

SWP 10,300 cfs Permits: Obtain permits to use full SWP capacity of 10,300 cfs, consistent with all applicable operational constraints (including recommendations for interim 8500 cfs operations), for water supply and environmental benefits, such as implementation of the Environmental Water Account. (It is likely that the Corps permit to use the full SWP capacity would be a temporary one, pending the outcome of CALFED's staged decision-making process for Delta facilities.) Facilitate permitting increased SWP export flexibility up to 8500 cfs with existing facilities and continuation of the Temporary Barriers Program, with appropriate interim constraints.
There shall be no increase of DWR export pumping or changes in operations of Clifton

Court Forebay that would reduce water levels in any South Delta channel during low tides until modeling is done to predict how such proposals will affect the efficiency and operation of the tidal barrier programs, and South Delta water levels and circulation in general. Such modeling requires that SDWA representatives be involved in the input/assumptions in the modeling, and be able to critique the preliminary results. No increase in DWR export pumping or intake to Clifton Court Forebay during low tides may occur until adequate measures are installed and operating to ensure such changes will not adversely affect South Delta water levels and circulation both upstream and downstream of the barriers.

Joint Point of Diversion will be included in the EIR/EIS to provide full disclosure of a full range of potential impacts of actions recommended by DWR and USBR, including JPOD for interim operations at 8500 cfs maximum export rate, and long-term operations at 10,300 cfs. This evaluation covers incremental impacts beyond the JPOD evaluation conducted by the SWRCB EIR, which only covers JPOD with existing permitted pumping rates.

Permanent Barriers: Expedite construction of permanent operable barriers at the Head of Old River, Old River at Tracy, and Middle River upstream from Victoria Canal. Phase out all temporary barrier installations as these three permanent barriers, dredging, and extension of local agricultural diversions are completed. The GLC temporary barrier would be phased out after completion of Grant Line Canal dredging and extension of agricultural intakes are completed and operational. If impacts to south Delta diverters occur after implementation of the south Delta improvements package, a response plan to mitigate those impacts will be implemented. The plan would include sufficient funds to fully mitigate for impacts on water supply availability for diverters in the south Delta region.

Channel Dredging: Dredge segments of south Delta channels to limit scour velocities induced by project export pumping, to facilitate adequate water supply for local agricultural intakes, and to address local navigation obstructions. This work would be closely coordinated with or conducted by the Corps, given its expertise and historic involvement with Delta dredging projects.

DWR, USBR, and the Corps shall generally designate those channel segments they intend to dredge throughout the south Delta region and the approximate magnitude of such dredging.

It is recognized that the extent of dredging may be modified as detailed bathymetry data and hydrodynamic modeling is refined. Additional dredging may also be implemented subsequent to the initial dredging if required to achieve the desired effect. Future maintenance dredging may also be required to maintain the desired channel hydraulic characteristics. DWR, USBR, and the Corps will diligently pursue such dredging as required.

Agricultural Diversions Extension: Extend and screen agricultural intakes in Grant Line

Canal and the regions west of the proposed barrier locations.

Extend local diversions to assure local water supply availability. Consolidate diversions where feasible and beneficial on a voluntary basis. Modifications to diversion facilities shall only be done in a manner that does not change the existing water right of the diverter or the priority thereof and shall be at no cost to the diverters.

SDWA, with DWR and USBR, will work to secure permits and access from the landowners/diverters. If a diverter has a flood gate and no pump intake, DWR and USBR shall fund appropriate modifications and related operations costs to mitigate for significant residual stage impacts which may occur.

Diversion structures which are modified to address water supply availability concerns shall be screened. The screening facilities shall be installed and maintained at no cost to the diverters.

Barrier Operations: Form a Barrier Operations Coordination Team, consisting of designated staff representing USFWS, NMFS, DFG, DWR, USBR, and South Delta Water Agency to operate the barriers in response to changing fish densities, flows, and water quality changes. The team would be chaired by representatives of the fishery agencies. BOCT would coordinate with the CALFED Ops Group, and employ the same established approach for elevating conflicts which might occur in the course of operations deliberations.

Monitoring: Monitor barrier effects on fish, stages, circulation, and water quality to support real-time barrier operations as well as gather information to support future planning and management decisions. Monitoring also needs to include operations of the new screened intake structure, channel dredging, modifications of agricultural intakes.

Mitigation: Implement mitigation actions for direct and indirect project features and actions through mitigation practices established in the CALFED Program.

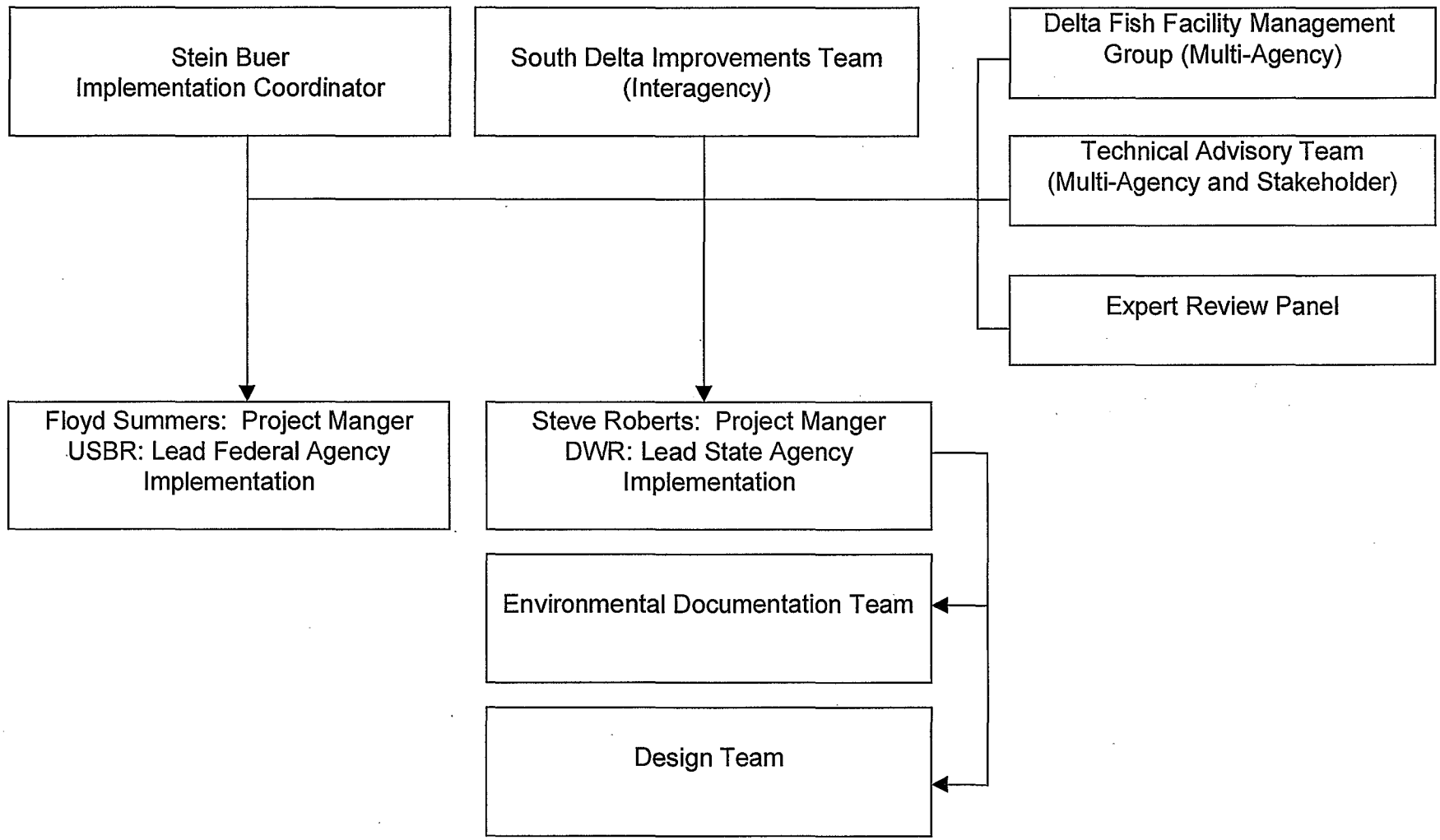
Implementing Agencies
Project Management: Steve Roberts, DWR
Lead State agency DWR
Co-Lead Federal Agencies, USBR, Corps

Required Resources
Staff is already in place, primarily provided by DWR. Planning effort is costing about $2 million per year.

Coordination
See Figure 3.

Schedule
See Figure 2.

Figure 3. EIR/EIS: South Delta Facilities



EA/EIS: Tracy Fish Test Facility (500 cfs)

Purpose
To develop best available technology screening and salvage for the intakes to the SWP and CVP export facilities, and apply it to screening and fish salvage for the full diversion capacity of the SWP and CVP.

Project Description
This project involves design, construction, and evaluation of a 500 cfs fish test facility located at the existing Tracy Fish Facility. The design of physical features and operating procedures will be developed by interagency and stakeholder teams of experts to assure that the best available technology, as well as all agency concerns, are considered in the development process. Because the facility is expected to be constructed on or contiguous with existing screening facilities, environmental impacts are expected to be minimal. As a result, an Environmental Assessment and Initial Study are being prepared to comply with NEPA and CEQA, respectively.

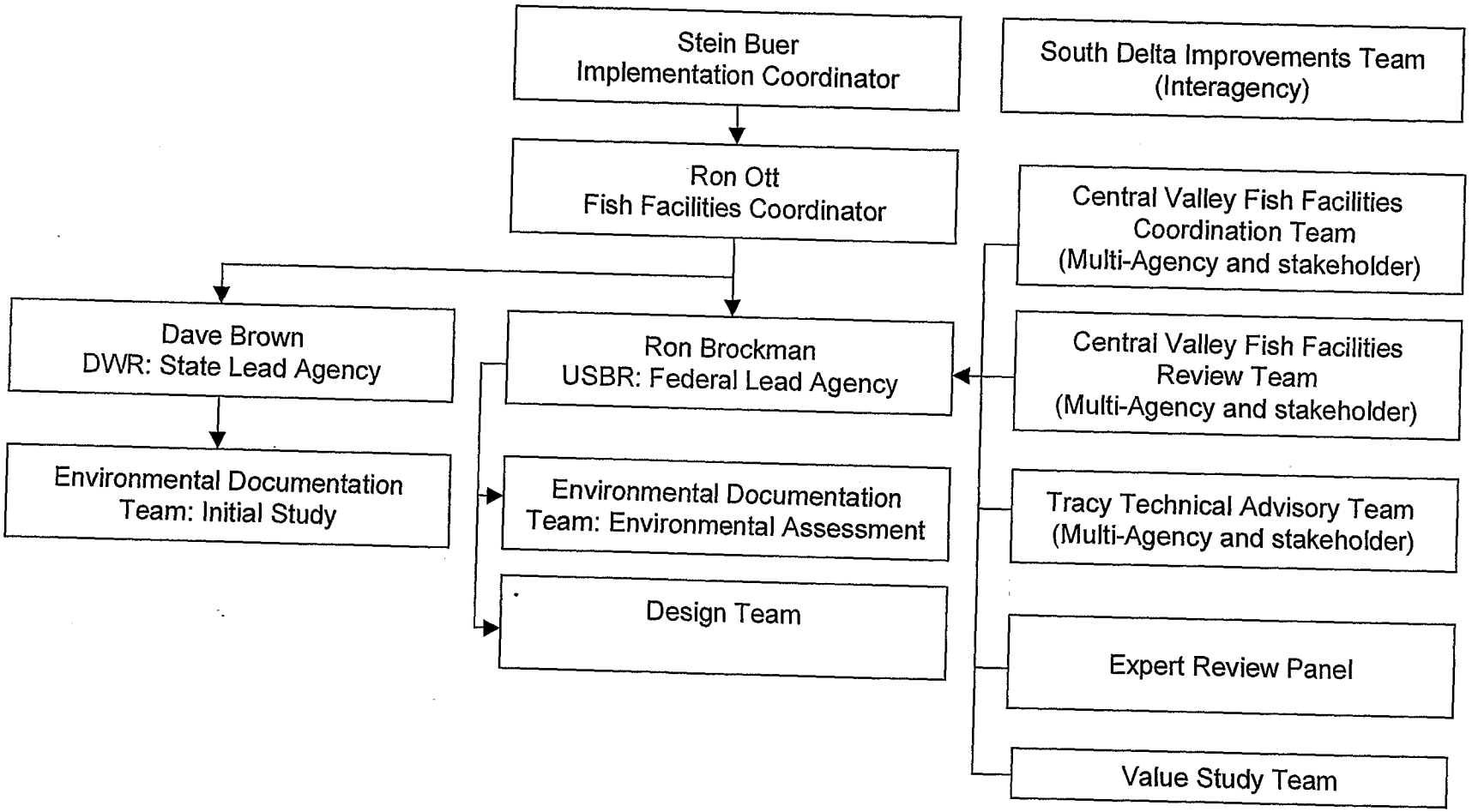
Implementing Agencies
Lead federal agency: USBR.
Lead state agency: DWR
Cooperating Agencies: USFWS, NMFS, CDFG,

Required Resources
Completion of the design and environmental documentation process is expected to cost about $5.7 million. Construction of the facility and completion of 3 years of testing are expected to cost about $120 million.

Coordination
See Figure 4 for the management structure. Design of the 500 cfs Tracy Fish Test Facility (TFTF) and the first screen module for Clifton Court Forebay Fish Facility Project (CCFFF) will be closely coordinated. CCFFF design will not be finalized until after the 500 cfs TFTF is constructed and has operated for several seasons. Preliminary design efforts will proceed concurrently with design of the TFTF, however. Interagency coordination will be structured and facilitated along the same pattern as for the TFTF, with coordination and oversight through IEP and CALFED. A draft agreement for the TFTFP – CCFFFP is included in Appendix A.

Schedule
The project planning, design, and environmental documentation process are expected to be completed in late 2000.
Construction is expected to be completed by 2002.
Testing is expected to continue for over 10 years, but information critical to development of the first 2,500 cfs module for Clifton Court Forebay.
See Figure 2 for additional details.

Figure 4. EA/EIS Tracy Fish Test Facility (500 cfs)



EIR/EIS: Ecosystem and Flood Plain Restoration Associated with the South Delta Improvements Program

Project Purpose
The purpose of this project is to restore fish and wildlife habitat, restore flood plains, and screen agricultural and wetland diversions in the Bay-Delta in a manner consistent with CALFED's Ecosystem Restoration Program and Multi-Species Conservation Strategy. Restoration actions will be selected to improve ecosystem structure and function in the Bay-Delta and reduce the risk of flooding in the lower San Joaquin River and adjoining channels in the south Delta in view of the facilities and operations proposed for the South Delta Improvements Program.

Project Description
At this point, the complete suite of restoration and screening actions associated with this project has not been identified. Some actions will be well defined prior to circulating a draft EIS/EIR. Other actions and alternatives will be defined during or following EIS/EIR preparation. The EIS/EIR will provide the needed environmental documentation for the specific actions that are defined at the time of public review. It will also provide that same documentation at a level that will minimize the need for extensive subsequent environmental documentation for activities that are proposed later but fall within the scope of the original impact analysis. The final project actions would be the result of detailed analyses and collaboration among the affected agencies, a panel of independent scientific reviewers, and stakeholders.

Actions would also be taken in the context of a site specific, comprehensive restoration strategy for fish, wildlife, and plant communities in the south Delta and lower San Joaquin River, in a manner compatible with flood protection goals along the San Joaquin River corridor. These actions would be carefully coordinated with other south Delta actions to ensure that irrigation water supplies to south Delta farmers and circulation would not be adversely affected during low flow periods. In addition to the restoration of large, contiguous areas of fish and wildlife habitat, diversion screening, and an invasive exotic species management strategy would be proposed.

Agricultural Diversions Screening: Selected local agricultural diversions would be screened in the south and central Delta and lower San Joaquin River. Diversions would be selected based on priorities established, in part, by an analysis of entrainment data collected early in the project planning stage. A fish screen maintenance program would be initiated. Consolidation and screening of local diversions would be evaluated but would only be done if consolidation does not change the existing water right of the diverter or the priority thereof. Consolidation of agricultural diversions shall only be done on a voluntary basis and at no cost to the diverters. Screening of local agricultural diversions would be advanced in accordance with the process set forth in Chapter IV, Section (C) (1) of the State Water Resources Control Board 1995 Water Quality Control Plan. That process was designed to reduce losses of all life stages of fishes to unscreened water diversions in the San Joaquin River and the Delta. Screening and maintenance of local agricultural diversions under this program would be at no cost to the diverters.

Implementing Agencies
The DFG would be the state CEQA lead agency and would be the project manager and project lead for completing the EIS/EIR and ensuring that a project is developed and permitted. The USFWS and NMFS would be the federal NEPA leads. The DFG may also implement specific elements of the project. Some project elements may be implemented by the Department of Water Resources or U.S. Army Corps of Engineers as well as by private landowners, reclamation districts, stakeholders, or non-profit organizations.

Required Resources
Project Personnel and Support:

- Project Manager: Senior Biologist Supervisor (Frank Wernette)

- Project Lead: Associate Biologist WL (Mary Dunne)

- Project Support (CVBDB and WHDAB):
  Associate Biologist M/F (Jim Starr)
  Environmental Specialist IV (Scott Cantrell)
  Associate Biologist WL (Kevin Shaffer)
  Fish and Wildlife Assistant 2 (Curtis Hagen)
  Environmental Specialist III (position to be filled)
  Biologist M/F; PI (position to be filled)
  Scientific Aid (2 positions to be filled)

- Project Support (Wildlife Conservation Board): Will obtain appraisals and negotiate and complete any land acquisitions or easements.

- Project Support (USFWS and NMFS): Level of support yet to be determined; at a minimum would serve on fish and wildlife agency coordination team to review, comment, and approve Project documents as required.

- Project Support (DWR): Level of support to be determined. May include operations modeling, DSM2 modeling, and engineering related to levee modifications,

- Project Support (COE): Level of support to be determined. May include levee and channel engineering and floodplain management expertise.

- Project Support (consultants): Ideally, consultants will be hired immediately to assist in public scoping sessions, meeting facilitation, selected chapter preparation, and general support as needed. Consultant participation in this project would decrease or increase depending on how quickly the consultant could be selected and hired and how quickly funding can be provided and new positions established and filled.

Project Funding
Refined cost estimates for this planning effort are not yet available. However,

extrapolating from other Delta planning program costs, they are likely to approach $3 million per year for the first two years and the final year would approach $2 million. Total costs would therefore be approximately $8 million for a three-year. The effort would result in certified environmental documentation and permits for implementation. Actual acquisition and construction costs are not included in this estimate.

This estimate assumes moderate assistance from a consultant, significant work assignments being completed through 1498s with DWR engineering and modeling staff, and assistance from COE staff.

Coordination

Project Reporting:

All project support staff within and outside of the DFG will receive assignments from, and report to, the Project Lead. The Project Lead will consult with the Project Manager as needed, as well as routinely forward project status reports. The Project Manager will be responsible for overseeing the Project, and will routinely brief Rick Soehren, Regional ERP Implementation Coordinator. Rick Soehren will coordinate with Dick Daniel, ERP Program Manager, and Stein Buer, CALFED, Implementation Coordinator, to assure that the regional ERP project documentation is consistent with other CALFED program elements.

Program Coordination:

DFG will ensure that coordination with other CALFED programs occurs during the development of the EIS/EIR and development of project specific actions. Programs of particular relevance are the South Delta Improvements Program, Levee Program, Multi-species Conservation Strategy team, and Comprehensive Monitoring, Assessment, and Research Program.

Coordination with other Agencies and Projects:

DFG will ensure that coordination with other agencies such as the California Department of Food and Agriculture, Reclamation Board, Delta Protection Commission, and South Delta Water Agency occurs during the development of the EIS/EIR and development of project specific actions. Coordination with other projects such as the joint Corps/DWR Sacramento-San Joaquin River Basin Comprehensive Study will also occur. Activities will be closely coordinated with specific landowners in the south Delta.

Electronic Coordination:

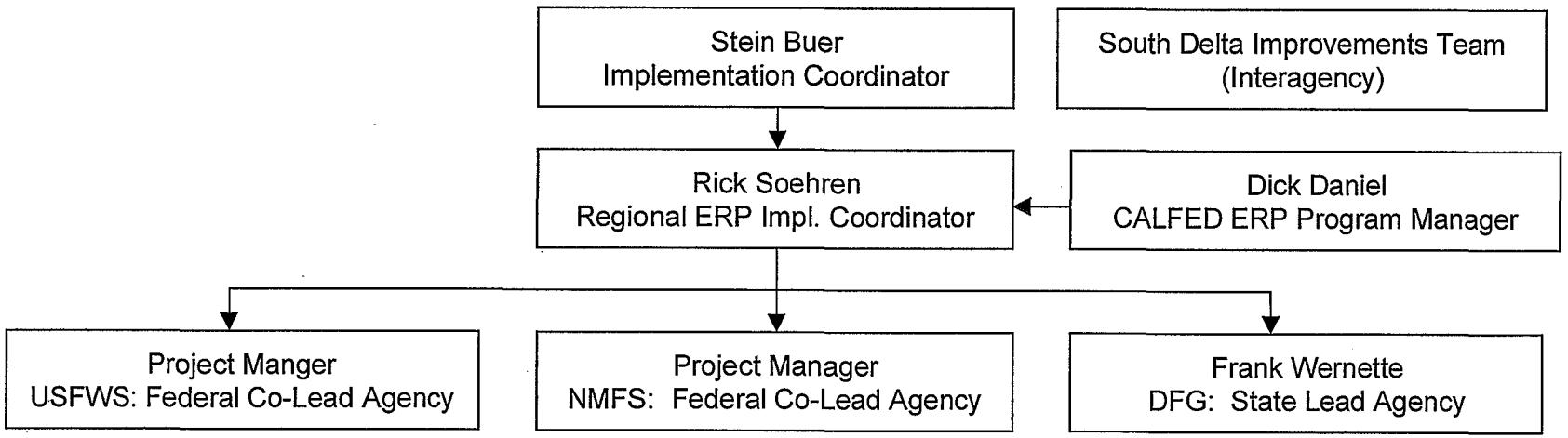
The DFG will develop and maintain a reflector site to facilitate coordination among agencies, independent scientists, and programs. The DFG will also develop and maintain a web site to keep all interested parties informed throughout the environmental documentation and project formulation process.

Schedule

In general, the DFG expects that this effort will require a minimum of three years before the final EIS/EIR is certified and selected projects are permitted for implementation.

Land acquisition may occur during the time the EIS/EIR is being prepared. Figure 2 includes a preliminary schedule for these steps. Actual implementation will occur over a five year period following completion of those steps.

Figure 5. EIR/EIS Regional Ecosystem Restoration Program



Coordination with
CMARP: Experimental Design
Levee Program
Corps/DWR Comprehensive Study
ERP Science Panel
Multi-Species Conservation Strategy

Stockton Dissolved Oxygen Solution Alternatives

Project Purpose
Improve San Joaquin River dissolved oxygen conditions such that the lower San Joaquin River dissolved oxygen is at all times greater than or equal to the 5 mg/l threshold.

Project Description
Evaluate and implement appropriate source control and water treatment actions for the lower San Joaquin River drainage, especially the Stockton area, as described in the CALFED Water Quality Program. These actions are likely to include a range of actions to reduce pollutant loads from non-point sources as well as municipal wastewater storage and treatment options and non-point source reduction measures. The specific actions will be determined based on detailed evaluations of pollutant sources, their relative contributions, pollutant control options, and other factors.

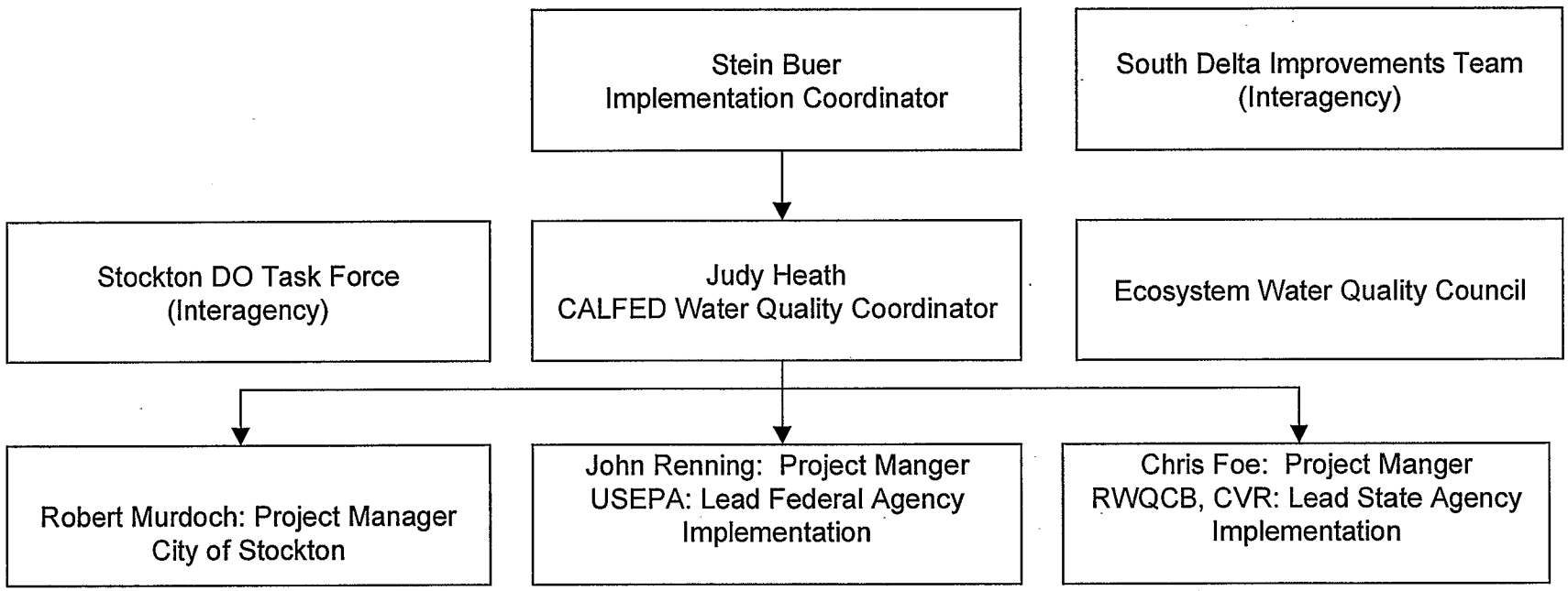
Implementing Agencies
A multi-agency task force effort is currently underway to design and conduct the preliminary studies of the causes of low DO in the lower San Joaquin River basin. It is likely that the City of Stockton would serve as the lead agency for preparation of an EIR/EIS. Lead state and federal agencies would be the Regional Water Quality Control Board, Central Valley Region, and the U.S. Environmental Protection Agency. The Corps would also potentially be a lead federal agency, given its role in supporting navigation for the Port of Stockton and its historic role in Delta dredging and channel maintenance activities.

Required Resources
Special studies and modeling costs will amount to about $1 million per year for FY 2000 and 2001. There are opportunities for cost sharing with local, state and private entities. Ongoing monitoring should be incorporated to match special study efforts. Ongoing monitoring will serve as indicators of success.

Coordination
Water quality actions in the lower San Joaquin River and south Delta region would be coordinated through a Water Quality Work Group (see Figure 6). It would define the scope of the actions, review background information, assess technical and financial feasibility, identify implementing agency, produce implementation plans, and oversee the various projects with an adaptive management process. Each action could deal with a few levels of activities that need to be completed prior to funding the action

Schedule
Local and State efforts have begun. Because of limited funding, the local effort is limited in scope and duration. Corrective actions as proposed through the stakeholder process should begin as soon as actions and funds are identified. A preliminary schedule is included in Figure 2.

Figure 6. EIR/EIS: Stockton Dissolved Oxygen Solution Alternatives



Improved Source Water Quality for Rock Slough Intake, CCWD

Purpose
Improve source water quality for the Rock Slough intake to the Contra Costa Canal in order to incrementally improve water quality for the Contra Costa Water District service area, particularly with respect to drinking water quality. The goal is to minimize impacts of surrounding agricultural land on the drinking water intake.

Project Description
Evaluate and, if demonstrated to be feasible, relocate and/or treat agricultural drainage discharge to reduce impacts on urban water quality (i.e. Veale Tract drainage relocation or treatment, RD 800 drainage relocation or treatment, and others). This includes feasibility studies and environmental impact evaluations.

The Rock Slough intake to the Contra Costa Canal is located in the west central Delta in the vicinity of Knightsen in eastern Contra Costa County. The land surrounding Rock Slough is primarily agricultural. The few residences scattered in the vicinity of the intake are ancillary to agricultural operations. Water levels in Rock Slough are subject to tidal variations, and a typical daily variation is about 3.5 feet. Peaks in Rock Slough salinity are typically caused by seawater intrusion from the San Francisco Bay during periods of low Delta outflow (typically, summer and fall), or by agricultural drainage discharges from the Delta and San Joaquin River during leaching and heavy storms (typically during winters of normal and wet years).

A number of agricultural drains discharge into Rock Slough and Contra Costa Canal. Veale Tract, an area of approximately 1,100 acres, is the largest single land area draining to Rock Slough. Drainage from Veale Tract has been suspected to be the major cause of salinity increases at the District's intake during wet winters. For example, chloride at Pumping Plant No.1 was over 100 mg/L in February and March of 1996 when the chloride level at the junction of Old River and Rock Slough was under 50 mg/L. Agricultural drainage during wet winters can lead to significant increases in the concentrations of dissolved solids, total organic carbon (TOC) and, possibly, pathogens in CCWD's drinking water supply from Rock Slough and at other urban drinking water intakes in the Delta.

Detailed monitoring is already being carried out by the Department of Water Resources (DWR), the Bureau of Reclamation (Bureau), and CCWD at several locations along Rock Slough and Contra Costa Canal. Sampled parameters include EC, chlorides, metals, pesticides, pathogens, and other constituents as part of the D1485 compliance monitoring and the Municipal Water Quality Investigation Program. However, a lack of simultaneous measurements along the length of the two channels does not allow the source(s) of degradation to be identified conclusively.

Implementing Agencies
Project Management: Richard Denton
The lead agency for this planning process would be Contra Costa Water District. Lead state and federal agencies would be the Department of Water Resources, and the U.S. Environmental Protection Agency.

Required Resources
Mobilization costs, staff costs, and laboratory costs to perform sampling and generate a conclusive summary of existing conditions and feasibility of treatment of relocation to alternative locations will cost approximately $1.0 million, which is to be expended in FY 2000. Environmental Documentation costs are expected to add about 20% to these cost figures. Relocation costs may be on the order of $ 4.0 million.

Current monitoring should be compared to the additional monitoring needed for the project. Project managers should determine the need for ongoing monitoring in the area, in addition to current monitoring, to provide the necessary information to make appropriate operational changes.

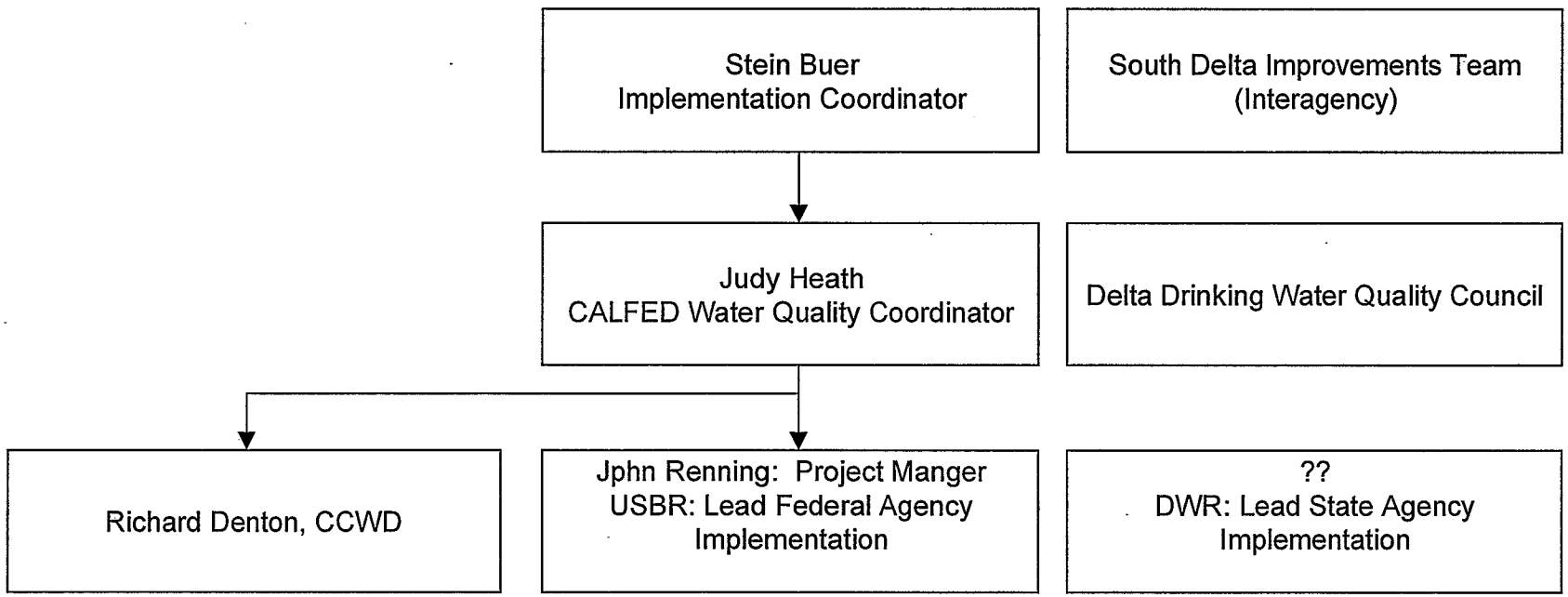
Coordination
The CALFED Water Quality Program should oversee the scope of the project. DWR should oversee evaluation of existing conditions and alternative impacts. The US Bureau of Reclamation should be the federal contract authority if necessary. See Figure 7.

CALFED staff would be involved in program development and the results of the study.

Schedule
To pinpoint and quantify the sources of salt and other contaminants into Rock Slough and the Canal, simultaneous measurements along a number of locations (up to twelve) between CCWD Pumping Plant No. 1 and the junction with Old River are planned for the late fall/winter of 1999/2000. A preliminary schedule is included in Figure 2.

Sampling alternative drain locations will be done at various times throughout the characterization process.

Figure 7. EIR/EIS: Improved Source Water Quality for Rock Slough Intake, CCWD



Agricultural Drainage Management in the San Joaquin Basin

Purpose
To reduce pollutant loads and contaminants from non-point and point sources in the San Joaquin River Basin and reduce the impacts on public and environmental health through water quality and water management actions.

Project Description
Implement regional, including but not limited to on-farm, environmentally safe drainage management measures and technical programs such as evaporation ponds, drainage treatment and re-use facilities, measures to lower shallow groundwater levels, and other measures and continue to implement existing such programs and measures. These include pilot programs to improve integrated on-farm management of selenium. Provide low interest loans and grants to support implementation.

Implement regional and demonstration projects and cost effective irrigation improvement projects such as drip irrigation, subsurface irrigation, and recycling systems which will reduce discharge and movement of saline water from farms and continue to implement existing such projects. Provide low interest loans and grants to support implementation.

Evaluate, and if demonstrated to be feasible, implement release of accumulated salts during high flow periods. If proven feasible, implement construction of regional and on-farm drainage retention facilities for storage between release opportunities. Provide grants and low interest loans for implementation.

Implementing Agencies
Proposed lead federal agency would be USBR. Proposed lead State agency would be DWR. Local water districts would participate as lead local agencies or as cooperating agencies, depending on locations and actions.

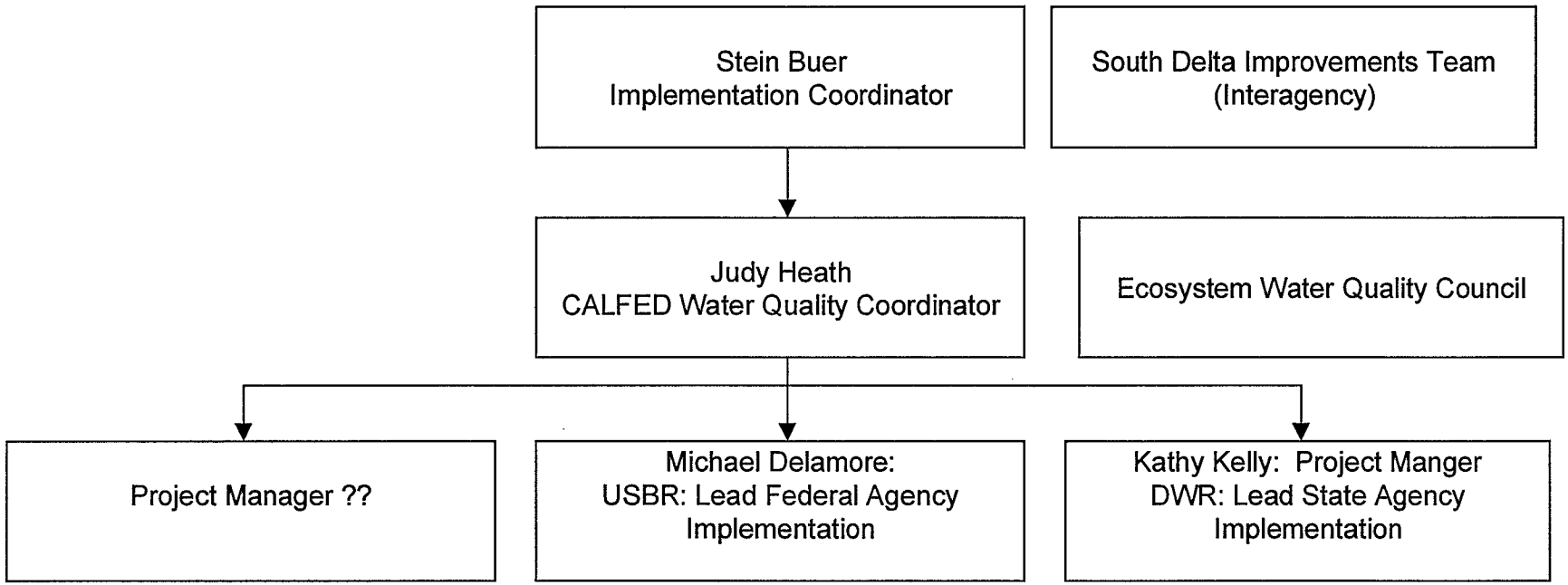
Required Resources
Current projections indicate the need for about $0.5 million per year for FY 2000 and Fy 2001.

Monitoring associated with this project should be coordinated with monitoring of related State and Federal agency projects. Monitoring should be designed to indicate relative impacts of project implementation.

Coordination
See Figure 8.

Schedule
A preliminary schedule is included in Figure 2.

Figure 8. EIR/EIS: Agricultural Drainage Management in the San Joaquin Basin



Assessment of Sources and Magnitudes of Loadings of Constituents of Concern for Drinking Water

Project Purpose
Identify sources of constituents of concern for drinking water to evaluate potential for correction.

Project Description
Determine sources of drinking water constituents of concern and evaluate potential for reduction. The current list of constituents includes total organic carbon (and dissolved organic carbon) natural organic matter, microbial pathogens, nutrients, total dissolved solids, salinity, turbidity, and bromide. Other constituents may be added as a part of adaptive management.

Implementing Agencies
The Department of Water Resources has monitoring and research staff to conduct or contract for studies and other pilot scale projects. In addition, the DWR Bryte Chemical Laboratory or its contract laboratories can perform chemical analysis and quality control. USGS also has scientists for studies and appropriate contract offices. DHS is the primacy agency who have staff to enforce the drinking water regulations in California and the Regional Water Quality Control Board has staff which regulate point and non-point discharges.

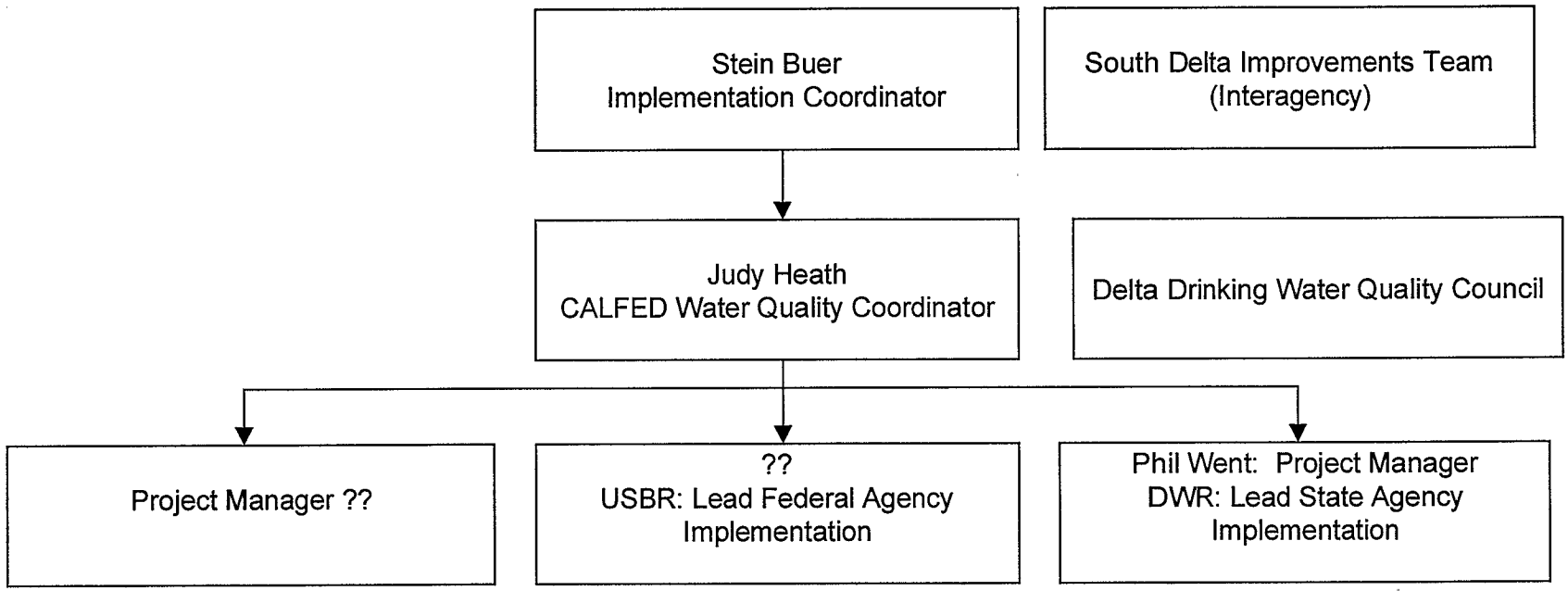
Required Resources
Monitoring studies would begin in some critical areas at a cost of about $0.5 million for the first year (FY 2000). As different issues are studied in greater depth, the budget should be increased to $1 million per year for a several years (FY 2001 and following).

Monitoring should be designed to coordinate with special studies (some category III funded) that are also proposed.

Coordination
Water quality actions in the lower San Joaquin River and south Delta regions would be coordinated through the CALFED Delta Drinking Water Quality Council (DDWQC). The DDWQC will oversee implementation of CALFED drinking water actions. A technical task group will be formed to define the scope of actions, review background information, assess technical and financial feasibility, produce implementation plans, and make recommendations to CMARP and the DDWQC on adaptive management. CMARP will oversee the monitoring and research components through coordination with the DDWQC. See Figure 9.

Schedule
Assessment structure should be designed by mid to late 1999 and studies based on priority structure could begin by January 2000. A preliminary schedule is included in Figure 2.

Figure 9. Technical Study: Assessment of Sources and Magnitudes of Loadings of Constituents of Concern for Drinking Water



Feasibility Study: Recirculation as a Tool for Meeting Lower San Joaquin River Flow and Water Quality Objectives

Purpose
Meet lower San Joaquin River flow and water quality objectives while minimizing impacts to existing water users in the basin.

Project Description
Evaluate the feasibility of recirculation of water pumped from the Delta by the CVP and SWP to help meet San Joaquin River flow and water quality objectives. Specific technical tasks related to the feasibility study are outlined below:

- Determine hydrologic, hydrodynamic, and water quality impacts of various recirculation alternatives related to the Bay-Delta, with emphasis on the south Delta.
- Determine possible changes in agricultural surface and subsurface flows to the lower San Joaquin River, including data analysis on water quality impacts (i.e. selenium, TDS, and bromides).
- Evaluate implications of proposed recirculation alternatives on estuarine habitats and sensitive species of the Bay-Delta, with emphasis on evaluation of impacts to threatened and endangered species.
- Identify the environmental issues related to biological effects of recirculation operations on lower San Joaquin River fisheries.
- Evaluate the water supply reliability impacts of regulations, and new laws related to the recirculation alternatives on SWP/CVP operations.
- Evaluate potential capital improvement projects related to the recirculation alternative, including costs/benefits analysis.

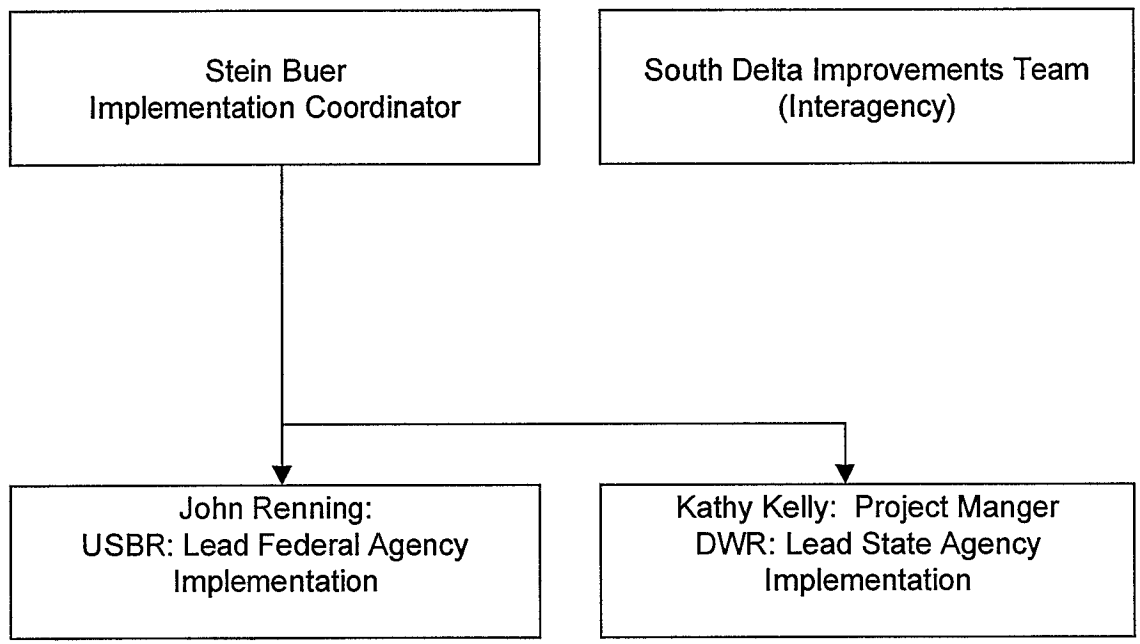
Implementing Agencies
Project Management: Mike Ford/Henry Wong
Lead Federal Agency: USBR
Lead State Agency: DWR
Local: Water Districts and the San Joaquin River Group Association

Required Resources

Coordination
See coordination discussion for Stockton Dissolved Oxygen Solution Alternatives and Figure 10.

Schedule
See Figure 2.

Figure 10. Feasibility Study: Recirculation as a Tool for Meeting Lower San Joaquin River Flow and Water Quality Objectives



Coordination with local Water Districts

EIR/EIS: Vernalis Adaptive Management Plan

Project Purpose
To manage sping pulse flows and exports in a systematic pattern which is intended to reveal

Project Description
VAMP: Implement the Vernalis Adaptive Management Plan.

Secure and/or provide sufficient water so as to meet the Salinity Objective, the VAMP flows, the USBR's share of endangered species requirements, and the USBR's share of the other requirements of the 1995 Water Quality Control Plan.

The CALFED Ops Group incorporates the annual task of evaluating potential impacts of the implementation of the SJRA. Should any significant water quality impacts be identified, the SJR agreement signatories, in coordination with the Ops Group, will develop a plan to ensure that water quality will not be negatively impacted by the SJRA to a material degree beyond the standards established by the SWRCB, measured by monthly averages. Establish a San Joaquin River Water Quality Protection Reserve Fund to address real-time water quality issues with all available feasible tools.

The funds paid to the San Joaquin River Group Authority under the terms of the San Joaquin River Agreement are intended to be used substantially for enhancing efficient water management within the districts. The funding is established for implementation of conjunctive use and other water efficiency projects that will mitigate potentially significant impacts to agricultural water users and to groundwater conditions. Use of these funds by public agencies will be documented in each agency's annual financial audit report.

The SJRGA has adopted findings pursuant to the California Environmental Quality Act regarding the SJRA which, among other things, commit Oakdale Irrigation District and Merced Irrigation District to implementing conjunctive use and other water efficiency projects to mitigate groundwater impacts associated with the SJRA. The findings also declare funds associated with the SJRA will be used to implement the projects. In addition, other members of the SJRGA have implemented or are planning to implement water efficiency projects consistent with AB 3616 and in coordination with groundwater management plans (AB 3030) and current water supply plans.

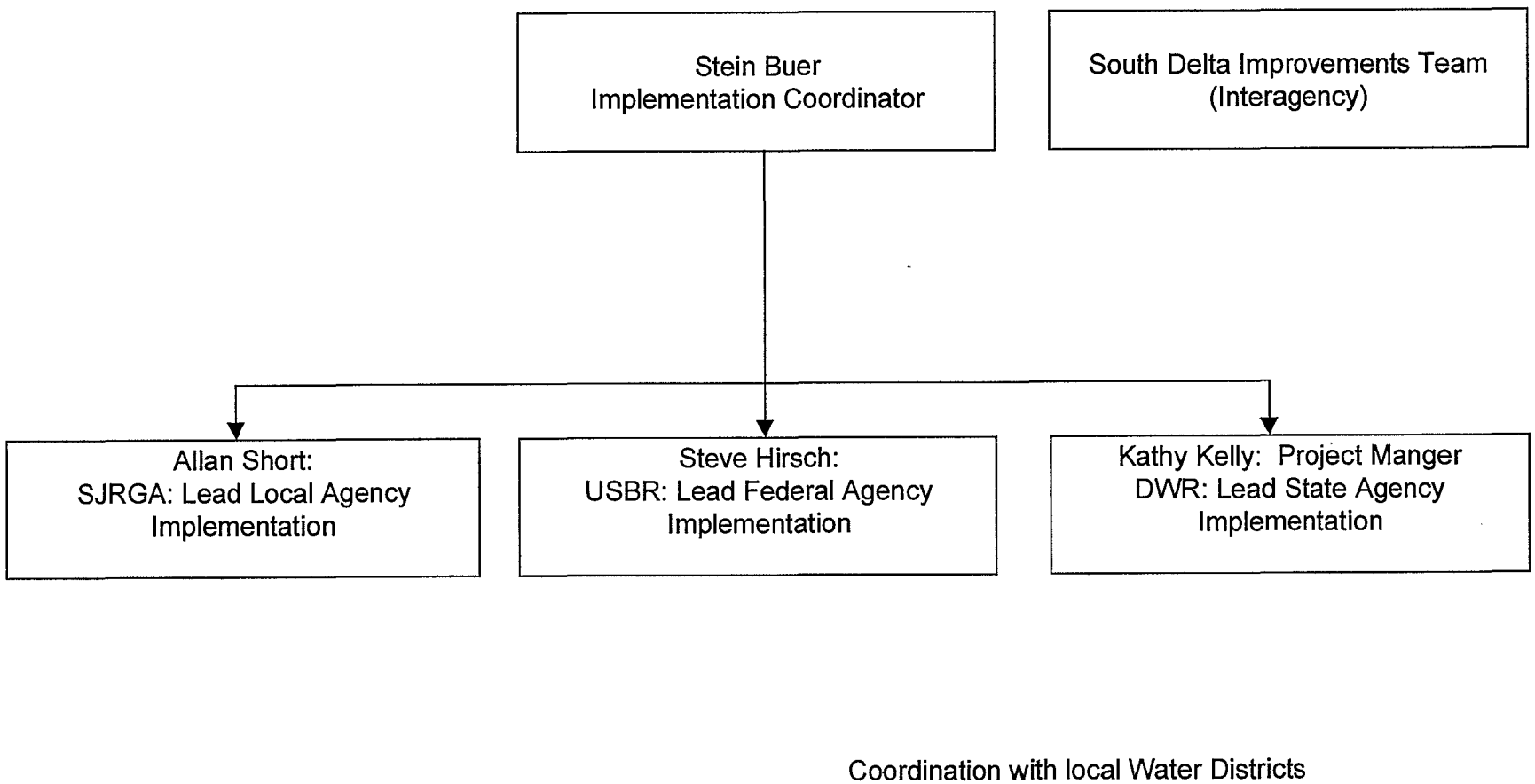
Implementing Agencies
Project Management: Allan Short, SJRGA
SWRCB
DWR: Kathy Kelly
USBR

Required Resources

Coordination
See Figure 11.

Schedule
See Figure 2.

Figure 11. EIR/EIS: Vernalis Adaptive Management Plan



IS: Temporary Barriers Program

Project Purpose
To continue permitted implementation of the Temporary Barriers Program until permanent barriers, dredging, and agricultural intake modifications provide alternative means to assure local water supply availability and quality.

Project Description
The existing program involves seasonal installation of four temporary barriers, including a fish protective barrier at the Head of Old River, and three barriers to provide for local watger supply availability for agricultural diversions. These are the barriers on Middle River near Victoria Canal, on Grant Line Canal east of Tracy Road, and Old River just upstream of the CVP Tracy Pumping Plant. Operating permits for the existing program will expire after the 2001 operating season. It is anticipated that seasonal installation of one or more temporary barriers will need to continue for several years thereafter, until permanent, alternative features are designed, permitted, and constructed. Therefore, the environmental documentation and permits for the TBP will need to be renewed annually, or less frequently if longer periods are permitted.

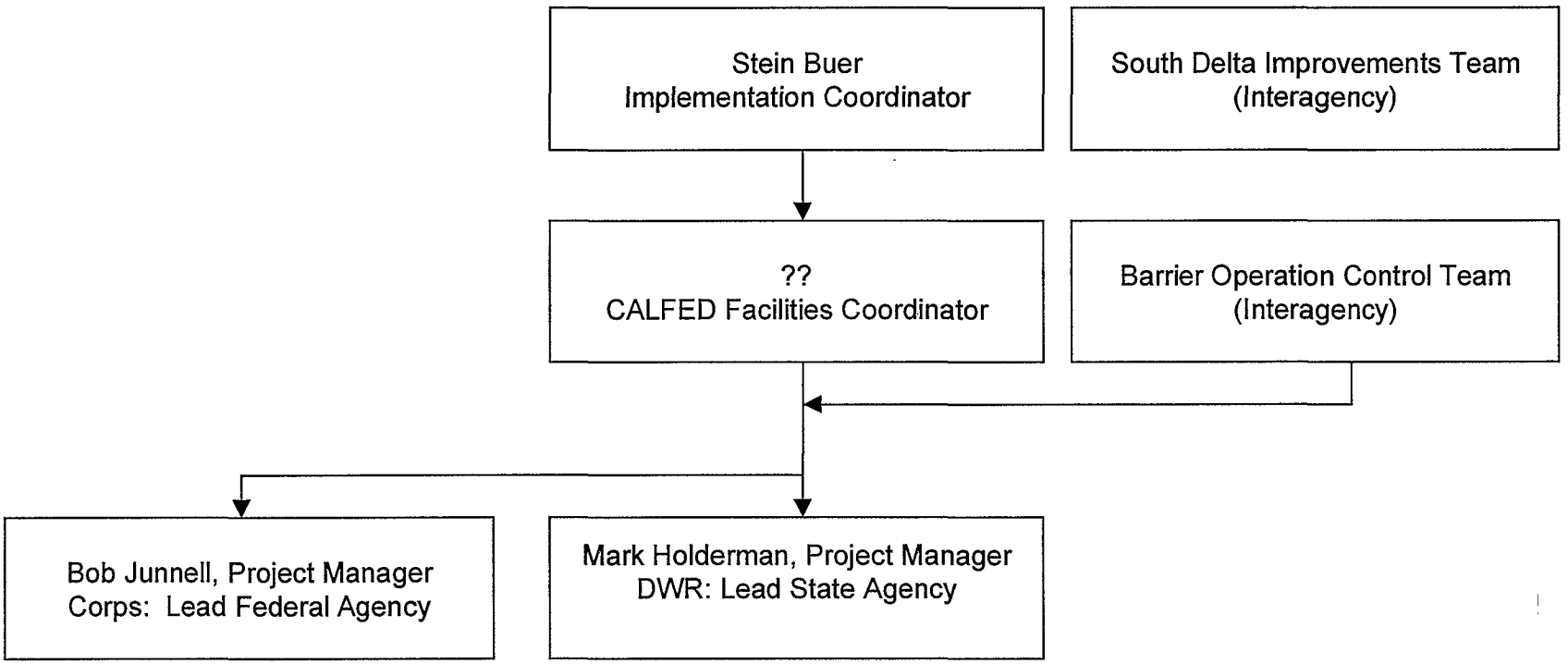
Implementing Agencies
Lead State Agency and Project Management: DWR, Mark Holdermand
Lead Federal Agency: Corps, Bob Junell
Cooperating Agencies:
USBR

Required Resources

Coordination
See Figure 12.

Schedule
See Figure 2.

Figure 12. IS/EA Temporary Barriers Program



EIR: Joint Point of Diversion for CVP/SWP

Project Purpose
To allow SWP and CVP to share existing permitted pumping capacities to optimize operational flexibility for the benefit of aquatic resources and water supply reliability.

Project Description
The USBR has petitioned the SWRCB to add the Clifton Court Forebay as a point of diversion and rediversion in the water rights permits of the CVP and to remove the 4,600 cfs rate of diversion restriction on pumping through the Delta Mendota Canal. To date, the SWRCB has not acted on this petition, but it has included evaluation JPOD in its Recommended Actions in the 1995 Environmental Report (Appendix 1 to Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary.

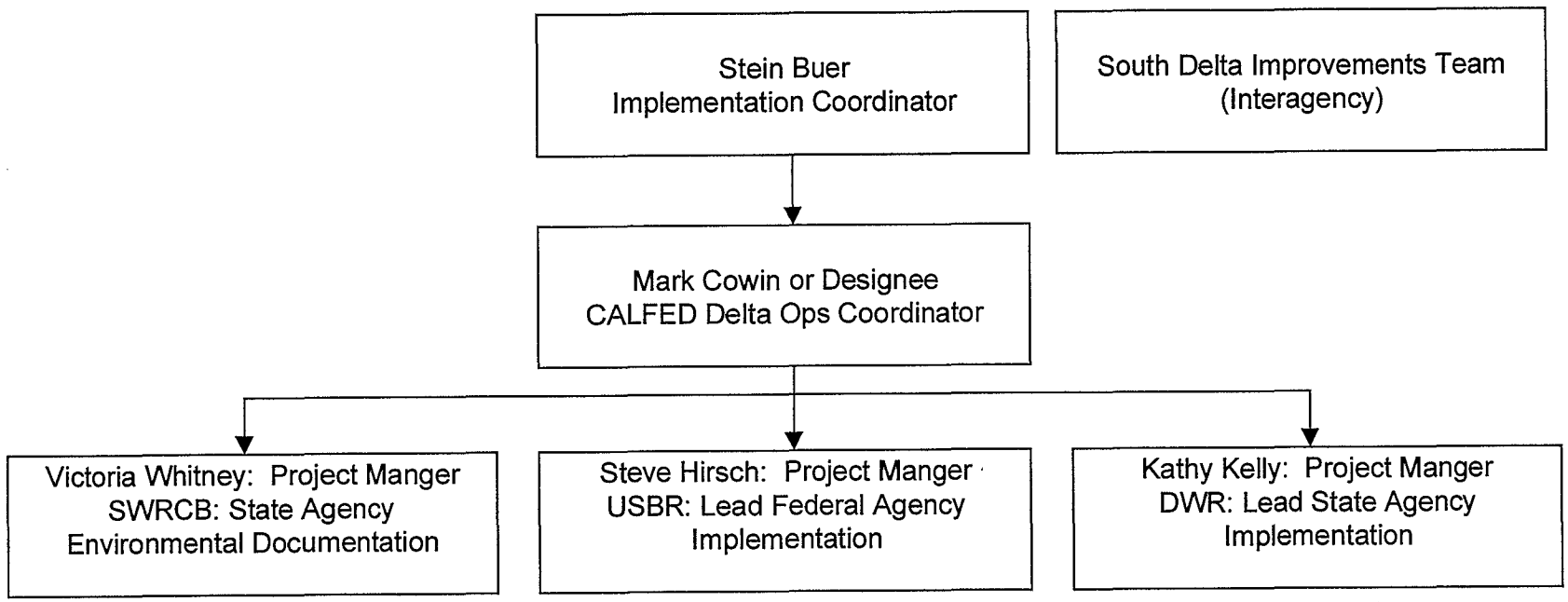
Implementing Agencies
Federal Lead Agency: USBR, Project Management:
State Lead Agency: DWR, Project Management: Kathy Kelly
Permit Agencies: SWRCB, CDFG, USFWS, NMFS, Corps

Required Resources
Minimal for the time being, to track USBR, DWR, and SWRCB actions on this issue and assure that they are consistent with CALFED objectives. Once the SWRCB hearing on this issue begin, following final adoption of the Water Quality Control Plan, more intensive effort will be required. No new budget actions required at the current time.

Coordination
Primarily between USBR, DWR, SWRCB, and CALFED staffs. See Figure 13.

Schedule
The SWRCB will consider authorizing combined use of the CVP and the SWP points of diversion and rediversion in the Delta during a separate proceeding following adoption of the Water Quality Control Plan. See Figure 2.

Fig. 13. EIR: SWRCB Water Quality Control Plan
Joint Point of Diversion



EIR/EIS: CVP Tracy Pumping Plant Screened Intake Upgrade/Relocation

Project Purpose
To optimize efficiency and reliability, as well as reduce impacts of State and Federal Delta diversion facilities.

Project Description
Evaluate and decide on whether to retain a separate CVP export fish screen and salvage facility or relocate screen intakes, including possible consolidation with the SWP facilities. Specific technical tasks related to the feasibility study are outlined below:

- Evaluate CVP/SWP intake location alternatives including an intertie between the two pumping plant intakes.
- Evaluate possible intertie between the project aqueducts downstream of the export pumps.
- Evaluate potential intake locations on estuarine habitats and sensitive species of the Bay-Delta, with emphasis on evaluation of impacts to threatened and endangered species.
- Determine hydrologic, hydrodynamic, and water quality impacts of proposed intake locations in the south Delta.
- Evaluate the water supply reliability impacts of intake locations on SWP/CVP operations.
- Evaluate potential capital improvement projects related to CVP/SWP intake locations, including costs/benefits analysis.
- Evaluate plans and regulations on the operations of CVP/SWP export facilities, including institutional arrangements.

Implementing Agencies
Project Management: Mike Ford/Ron Brockman
Lead Federal Agency: USBR
Lead State Agency: DWR

Required Resources

Coordination
See Figure 14.

Schedule
See Figure 2.

Figure 14. EIR/EIS: CVP Tracy Pumping Plant Screened Intake Upgrade/Relocation